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## CONDITIONAL CERTIFICATION FOR RELOCATABLE SCHOOL BUILDINGS

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# IR 16-1

References: California Administrative Code, Section 4-314

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Discipline: Structural

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This Interpretation of Regulations (IR) is intended for use by the Division of the State Architect (DSA) staff, and as a resource for design professionals, to promote more uniform statewide criteria for plan review and construction inspection of projects within the jurisdiction of DSA, which include State of California public elementary and secondary schools (grades K-12), community colleges, and state-owned or state-leased essential services buildings. This IR indicates an acceptable method for achieving compliance with applicable codes and regulations, although other methods proposed by design professionals may be considered by DSA.

This IR is reviewed on a regular basis and is subject to revision at any time. Please check the DSA web site for currently effective IR's. Only IR's listed in the document at <http://www.dsa.dgs.ca.gov/Pubs/default.htm> (click on "DSA Interpretation of Regulations Manual") at the time of plan submittal to DSA are considered applicable.

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**Purpose:** The purpose of this Interpretation of Regulations (IR) is to allow exceptions to the durability requirements for single classroom-size relocatable buildings intended for temporary use. A conditional certification will then be issued stating the modified durability conditions. The procedures for processing conditional certification are outlined below and are intended to follow the intent of Sections 17292 and 17405 of the Education Code.

**1. Basic Requirements.** All portions of relocatable school buildings are to conform to all requirements of the building standards adopted for public schools in Title 24 except as specifically described in this IR and shall be submitted to the Division of the State Architect (DSA) for approval at each site. The State Fire Marshal regulations contained in Parts 2 through 9, Title 24 and Title 19, and the regulations for accessibility are to be followed without modification. DSA Access Compliance Program approval is required for all new and existing construction.

**2. Request for Waiver.** The applicant shall initiate a request for waiver of the durability requirements for permanent foundations at the time the application for plan approval is filed. The applicant thereby acknowledges that a conditional certification is acceptable. The request for waiver may be made on the application form or by letter from the applicant or an agent of the applicant. A request for waiver from the building manufacturer or leasing company will not be accepted. This written request shall be submitted to DSA before the construction documents are stamped for identification. The DSA letter will indicate conditional approval.

**3. Modified Requirements.** The modified requirements may be applied only to individual one-story relocatable buildings with 2,160 square feet or less of floor area. Individual buildings may be placed adjacent to each other provided that any building will be capable of being relocated without affecting the stability of adjacent buildings. The clear separation shall not be less than four inches (drift/separation calculations are required for two-story relocatables) and the joint may be covered with flashings or other materials that do not prevent differential movement of the buildings. The detail of the covered joints shall be shown on the drawings.

**4. Substandard Foundations.** The following modifications will be permitted for conditionally approved foundations provided that the distance below the underside of the lowest floor framing member to the supporting grade does not exceed 18 inches.

**4.1** A wood sill plate of foundation grade redwood or preservative pressure-treated sawn lumber may bear directly on soil or paved surface. Grass or turf shall be cleared to bare soil under the entire area of the building. The wood sill plate may support wood cripple studs, posts, or continuous blocking and sheathing which need not be treated.

- 4.2 Isolated piers may be constructed of stacked wood members nailed together with hot-dipped zinc coated galvanized or equivalent corrosion resistant nails. Nailing shall be sufficient to transfer the required lateral forces to grade level. The bottom layer of wood shall be foundation grade redwood or preservative pressure-treated sawn lumber.
- 4.3 Where the surface of the adjacent exterior grade is higher than the bottom of the floor joists on any side of the building, all wood in the substructure and floor framing (excluding the floor sheathing) shall be foundation grade redwood or preservative pressure-treated sawn lumber with flashing, mow strip or paving, and drain in accordance with Figure 1. Nails used in the foundation or floor framing, except for floor sheathing attachment nails, shall be hot-dipped zinc coated galvanized or equivalent corrosion resistant nails. The area of openings to provide under-floor ventilation shall be that specified in Title 24, Volume 2, Section 2306A.7.
- 4.4 Foundation walls or pedestals may be constructed of reinforced concrete or reinforced fully grouted concrete block masonry. Provisions shall be made to transfer the required lateral shear force. Concrete shall be a minimum of 2500 psi and mortar 1800 psi.
- 4.5 Metal frame jacks, specifically designed or justified by testing for the project, may be used as isolated piers. Metal jacks shall be attached to the structure by mechanical means. Overturning and bending forces due to vertical and lateral loads are to be resisted in accordance with the applicable provisions of Part 2, Title 24, CCR.
- 4.6 The maximum bearing pressure for wood foundations bearing on soil or paving shall not exceed 1000 psf, unless substantiating soil data for some greater value is approved by DSA. The maximum allowable soil bearing pressure for concrete foundations designed in accordance with 2007 CBC, Section 1805A shall not exceed 1500 psf, unless substantiating soil data for some greater value is approved by DSA.
- 4.7 The footings and foundation structure shall be capable of resisting all loads specified in Part 2, Title 24, CCR. Unless the individual modules of the building are positively fastened together at intervals not exceeding 10'-0" o.c. at the roof and floor level, each module and its diaphragm shall be designed as a separate unit.
- 4.8 The foundation shall be designed to prevent sliding on the supporting surface by attaching the wood foundation plates for the building, ramps and stairs to the ground with restraining devices. An acceptable design would incorporate one-inch diameter Standard Weight (1.315" actual O.D.) hot dipped galvanized pipes or one-inch diameter solid steel rods spaced at not more than 10'-0" o.c. One pipe/rod shall be located a maximum of two feet from each corner in both directions and a minimum of two pipes/rods per discontinuous foundation strip. Pipes should penetrate into soil and/or paving a minimum of 12" measured vertically. Alternate or equivalent designs, when provided with structural calculations and details, will be considered.
- 5. Permanent Foundations.** Permanent foundations are required for all buildings, when the height between the underside of the lowest floor framing members and the supporting grade exceeds 18 inches, or when the building area exceeds 2,160 square feet. Permanent foundation design shall conform to all requirements of Part 2, Title 24, CCR.
- 6. Protection Against Deterioration.** To reduce the problems of deterioration, dry rot, or rust, drainage shall be provided to prevent water from ponding beneath the structure. Under-floor ventilation and clearance, and the treatment of wood members in close proximity to exposed ground, shall be in accordance with Section 2306A, Part 2, Title 24. A minimum clearance of two inches is required under floor members at all points.

**6.1** The minimum thickness of steel deck diaphragms and steel structural members permitted is 20 gage. The minimum thickness of non-structural steel roof decking and wall siding is 26 gage, protected with a durability coating. Steel members shall be given a rust inhibitive coating.

**7. Electrical, Mechanical and Plumbing.** All utility installations shall conform to the requirements of Title 24, Parts 3, 4 and 5. Provisions shall be made for grounding the electrical system and equipment of each individual building and this shall be shown on the drawings.

**7.1** A bonded common grounding electrode shall be provided for each metal building, exposed metal frame, ramp or stair and the electrical system installed at a readily verifiable location.

**7.2** A means of access shall be provided to all under-floor utilities such as electrical, mechanical and plumbing.

**8. Site Plan.** A plot plan is required which shows the following:

1. Fully dimensioned location of the proposed relocatable building(s) in relation to other buildings on the site. Show all buildings on the site and their DSA application numbers.
2. Elevation of finished and original grade at each corner of the building and the elevation of the finished floor. Show elevation of adjacent exterior finished grade at each corner of the building if different from foundation grade, and the elevation of the top and bottom of stairs and ramps.
3. Location of means of access to the building including access compliance requirements.
4. Location of all utilities serving the relocatable from the source to the point of connection. Include a signed statement, on the drawings, from the appropriate responsible engineer indicating verification of the location of the utilities shown as existing and that their capacity is adequate for the additional load. If the source of utilities is in or on an existing building, show the DSA application number under which the building was approved.
5. Location of existing fire alarm pull stations and signal devices. Location of fire apparatus access in accordance with Sections 3.05 and 3.16, Title 19, Public Safety, CCR.

**9. Identification.** The manufacturer or builder shall place two permanent metal identification labels on each building module, one mechanically fastened and visible from the exterior and the other mechanically fastened to the interior frame above the ceiling, at the end of the module. The labels shall show the DSA application number under which the building construction was authorized, the manufacturer or builder's name, the serial number, the design live loads for the roof and floor framing, wind speed and exposure category.

**9.1** The location of the identification label shall be shown on the building plans. For buildings that are manufactured in-plant, the plant inspector is to provide a verified report with each building, which shall indicate the manufacturer's name and the serial number for each building module and the DSA application number.

**10. Relocation of Existing Relocatable School Buildings.** Details shall include new foundation construction, superstructure to foundation connections, and module bolting

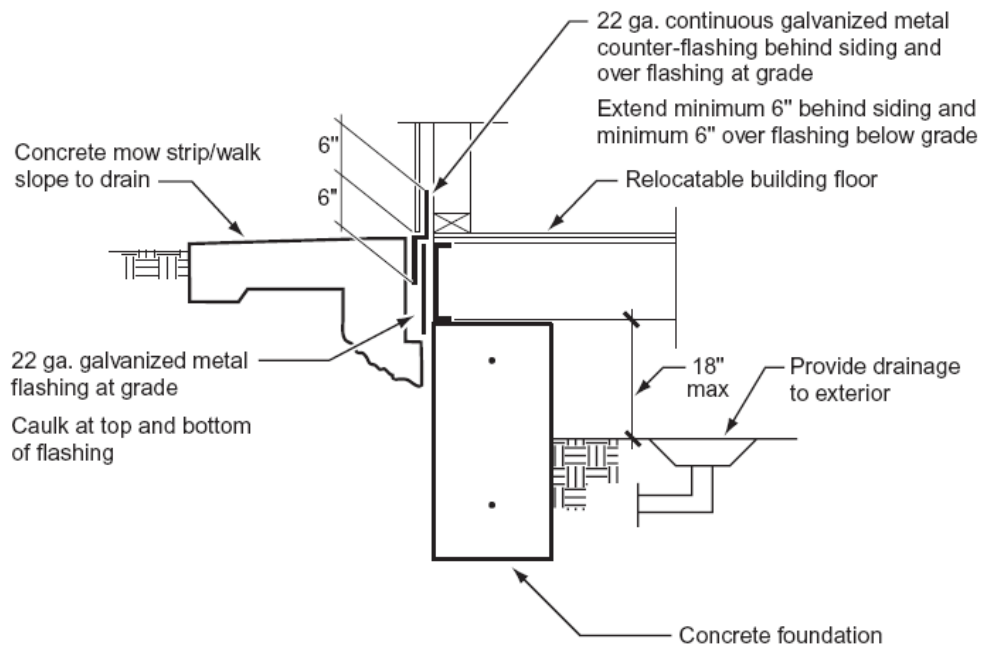
details if necessary. Do not reuse A-325 bolts. Plans submitted shall include site plan, complete floor plans, and details of all proposed work. Checking may be expedited if complete plans of the existing building to be relocated are submitted with the application package.

- 10.1** The certification by DSA of a relocatable building applies only to the location shown on the approved site plans and certification is therefore void if the building is relocated to another location. It is recommended that, when a building is moved, the district shall apply for DSA certification to avoid the possibility of individual liability of school board members. Relocation of an existing certified building within the same district shall be considered to be an alteration for the purpose of completing the application (Form DSA-1). A filing fee based only upon the value of the work shown on the plans and specifications, including moving costs, will be charged if an approved building is relocated.
- 10.2** When existing DSA-certified buildings are moved within the same school district or from one district to another, the plans and specifications are to indicate the application number of the previous certification for each building. If the building is moved as one unit, without disconnecting the individual modules, complete foundation and floor plans are required, but the plans of the superstructure need not be submitted. The design professional in responsible charge shall verify by appropriate means, subject to DSA approval, and submit a letter certifying that the building conforms to the originally approved plans and specifications and has not suffered structural deterioration or been structurally altered. A site plan and floor plan for the relocatable building shall be provided to facilitate review of electrical, mechanical, utility, fire and panic work as well as access compliance.
- 10.3** When relocation is proposed for existing buildings for which drawings were approved but the construction was not certified, the plans and specifications must include the DSA application number of the previous plan approval for each building and the design professional in responsible charge shall examine, by appropriate means, and certify that the building conforms to the originally approved plans and has not structurally deteriorated. Any deviations from the originally approved plans and specifications shall be indicated on the plans and specifications submitted under the current application for approval. If the building is moved as one unit and modifications or corrective work are not required, the plans of the superstructure need not be submitted.
- 10.4** Existing buildings not previously certified by DSA are considered to be new buildings. Complete plans, specifications, structural calculations for existing conditions and necessary reconstruction work, and site data are required to be submitted. In addition to the criteria of this IR, the design professional in responsible charge shall examine and certify, subject to DSA approval, that the building conforms with the plans being submitted for approval and so state in an accompanying letter. Any special tests or inspections required to verify the work are to be performed under the direction of the design professional in responsible charge.
- 11. Notice of Contract.** In the event the contractor has been selected and a bid price has been established prior to approval of the plans, the design professional in responsible charge is to file the Contract Information (Form DSA-102) at the time the plans are submitted for approval.

## Attachment

Figure 1

Figure 1



Note: Cross-ventilation at underfloor spaces is required per 2001 CBC Section 2306A.7 (2007 Section 1203.3)

Provide underfloor access as required per 2001 CBC Section 2306A.3 (2007 CBC Section 1209.1)